# GAMAP color table file and its basic usage
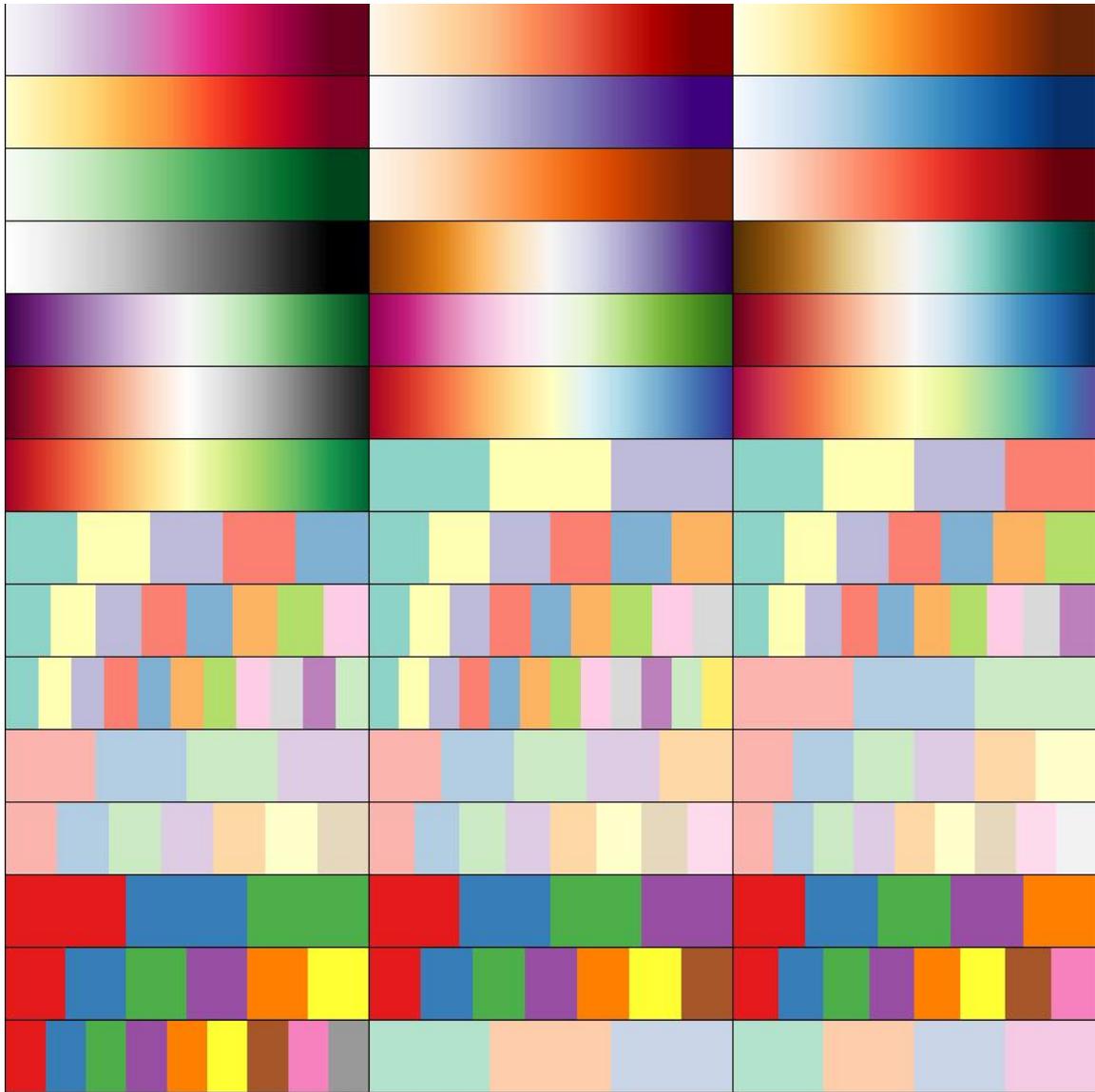
Philippe Le Sager and Bob Yantosca - v1.0, 2008-04-22

Cover image: composite image of Brewer color tables*.

Starting with v2.12, GAMAP uses a color table file (*.tbl) to load any color table. This file includes 130 tables (indexed from 0-129). They are all illustrated in the following pages.

Tables 0-40   are the ones that ship with IDL.
Tables 41-58   are sequential Brewer color tables[*].
Tables 59-67   are diverging Brewer color tables*.
Tables 68-125   are qualitative Brewer color tables*.
Tables 126-129   are custom color tables.

Basics

You can load a table at anytime interactively with the /X keyword:

      `idl> myct, /x`

or with either the table number or name:

      `idl> myct, 59`

      `idl> myct, 'rainbow'`

These commands will fill the structure !MYCT with all the information needed to correctly handle colors in gamap, ctm_plot, tvmap, colorbar, etc… For example:

      `idl> data=dist(30,30)`

      `idl> tvmap, data, /sample, /cbv`

To see the current table (and the drawing colors in reserved index 0-17):

      `idl> cindex`

Number of colors

You can select the number of colors with NCOLORS:

      `idl> myct, /x, ncolors=6`

      `idl> tvmap, data, /sample, /cbv`

Note: tables 68-125 disregard the NCOLORS keyword. !MYCT.ncolors will be exactly the number of colors that appears in the table name:

      `idl> myct, 'set3', ncolors=6`

will load only 3 colors. Thus these qualitative tables can be directly used in GAMAP without further manipulation. Try:

      `idl> tvmap, data, /sample, /cbv`

Diverging Color Tables

Diverging color table have a middle (neutral) color (usually white/yellow), from which the colors on each side of the colorbar diverge. The middle color is not present in the default table. For example you have 128 reds + 128 blues in the Red-Blue table:

> idl> myct, 'RdBu'

> idl> tvmap, data, /sample, /cbv

The MYCT routine can add the middle color with the MidColorPresent keyword. With **odd** number of colors, the middle color saddles the center of the color bar as expected:

> idl> myct, 'RdBu', ncolors=7, /MidC

> idl> tvmap, data, /sample, /cbv

If you are using an **even** number of colors, there is usually no middle color to show. But using the MidColorPresent keyword will insert it twice, once on each side of the middle of the bar[1]:

> idl> myct, 'RdBu', ncolors=14, /MidC

> idl> tvmap, data, /sample, /cbv, div=3

Note that using /MidC you will not see NCOLORS in the interactive window with /X. Only once the table is loaded, NCOLORS are interpolated.

Four other useful keywords

REVERSE   to flip the color table

> idl> myct, 'RdBu', /REV & cindex

RANGE   to clip bottom/top of the initial color table, within 0-1 (**Note**: cannot be used with /MidColorPresent yet)

> idl> myct, 'RdBu', Range=[0.2, 0.8] & cindex

VALUE   to lower the brightness of the table (0: darkest, 1: brightest). Default is 1.

> idl> myct, 'RdBu', value=0.8 & Cindex

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[1] This behavior was found useful by some users to isolate data around the middle value, while using color tables with even number of colors.

SATURATION   to lower the color saturation (0: darkest, 1: brightest). Default is 1.

```
idl> myct, 'RdBu', sat=0.5 & Cindex
```

Note: these keywords take effect once a table is loaded. If you load a table interactively with /X, you will **not** see their effect until you call CINDEX or any display routine.

You will find more example and other keywords in the routine header. VALUE and SATURATION are the V and S from the HSV color space.

Acknowledgment
Thanks to Michael Galloy for providing the initial IDL table file with the ColorBrewer Color Schemes.

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0. B-W LINEAR

1. BLUE/WHITE

2. GRN-RED-BLU-WHT

3. RED TEMPERATURE

4. BLUE/GREEN/RED/YELLOW

5. STD GAMMA-II
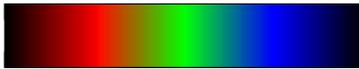
6. PRISM

7. RED-PURPLE

8. GREEN/WHITE LINEAR

9. GRN/WHT EXPONENTIAL

10. GREEN-PINK

11. BLUE-RED

12. 16 LEVEL
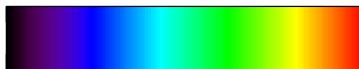
13. RAINBOW

14. STEPS

15. STERN SPECIAL

16. Haze

17. Blue - Pastel - Red

18. Pastels

19. Hue Sat Lightness 1

20. Hue Sat Lightness 2

21. Hue Sat Value 1

22. Hue Sat Value 2
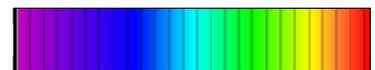
23. Purple-Red + Stripes

24. Beach

25. Mac Style

26. Eos A

27. Eos B

28. Hardcandy

29. Nature

30. Ocean

31. Peppermint

32. Plasma

33. Blue-Red

34. Rainbow

35. Blue Waves

36. Volcano

37. Waves

38. Rainbow18

39. Rainbow + white

40. Rainbow + black

41. YlGn (Sequential)

42. YlGnBu (Sequential)

43. GnBu (Sequential)

44. BuGn (Sequential)

45. PuBuGn (Sequential)

46. PuBu (Sequential)

47. BuPu (Sequential)

48. RdPu (Sequential)

49. PuRd (Sequential)

50. OrRd (Sequential)

51. YlOrRd (Sequential)

52. YlOrBr (Sequential)

53. Purples (Sequential)

54. Blues (Sequential)

55. Greens (Sequential)

56. Oranges (Sequential)

57. Reds (Sequential)

58. Greys (Sequential)

59. PuOr(Diverging)

60. BrBG(Diverging)

61. PRGn(Diverging)

62. PiYG(Diverging)

63. RdBu(Diverging)

64. RdGy(Diverging)

65. RdYlBu(Diverging)

66. Spectral(Diverging)

67. RdYlGn(Diverging)
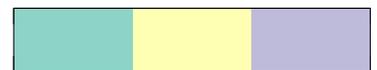
68. Set3 (Qualitative) - 3 colors
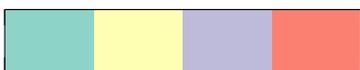
69. Set3 (Qualitative) - 4 colors
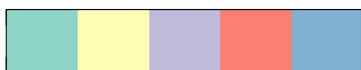
70. Set3 (Qualitative) - 5 colors
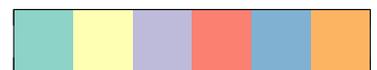
71. Set3 (Qualitative) - 6 colors
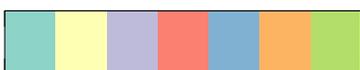
72. Set3 (Qualitative) - 7 colors

73. Set3 (Qualitative) - 8 colors

74. Set3 (Qualitative) - 9 colors

75. Set3 (Qualitative) - 10 colors

76. Set3 (Qualitative) - 11 colors

77. Set3 (Qualitative) - 12 colors

78. Pastel1 (Qualitative) - 3 colors
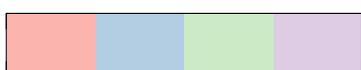
79. Pastel1 (Qualitative) - 4 colors
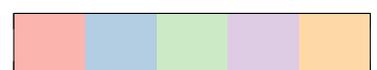
80. Pastel1 (Qualitative) - 5 colors
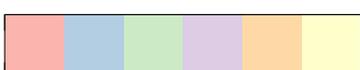
81. Pastel1 (Qualitative) - 6 colors
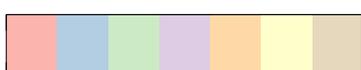
82. Pastel1 (Qualitative) - 7 colors
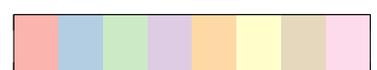
83. Pastel1 (Qualitative) - 8 colors
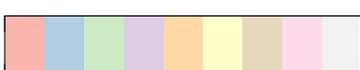
84. Pastel1 (Qualitative) - 9 colors

85. Set1 (Qualitative) - 3 colors

86. Set1 (Qualitative) - 4 colors

87. Set1 (Qualitative) - 5 colors

88. Set1 (Qualitative) - 6 colors

89. Set1 (Qualitative) - 7 colors

90. Set1 (Qualitative) - 8 colors

91. Set1 (Qualitative) - 9 colors

92. Pastel2 (Qualitative) - 3 colors
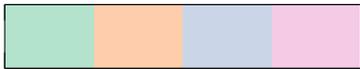
93. Pastel2 (Qualitative) - 4 colors

94. Pastel2 (Qualitative) - 5 colors

95. Pastel2 (Qualitative) - 6 colors

96. Pastel2 (Qualitative) - 7 colors
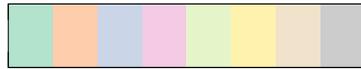
97. Pastel2 (Qualitative) - 8 colors

98. Set2 (Qualitative) - 3 colors
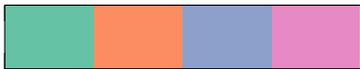
99. Set2 (Qualitative) - 4 colors
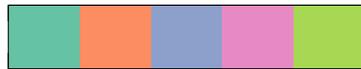
100. Set2 (Qualitative) - 5 colors

101. Set2 (Qualitative) - 6 colors

102. Set2 (Qualitative) - 7 colors

103. Set2 (Qualitative) - 8 colors

104. Dark2 (Qualitative) - 3 colors

105. Dark2 (Qualitative) - 4 colors

106. Dark2 (Qualitative) - 5 colors

107. Dark2 (Qualitative) - 6 colors

108. Dark2 (Qualitative) - 7 colors

109. Dark2 (Qualitative) - 8 colors

110. Paired (Qualitative) - 3 colors

111. Paired (Qualitative) - 4 colors

112. Paired (Qualitative) - 5 colors

113. Paired (Qualitative) - 6 colors

114. Paired (Qualitative) - 7 colors

115. Paired (Qualitative) - 8 colors

116. Paired (Qualitative) - 9 colors

117. Paired (Qualitative) - 10 colors

118. Paired (Qualitative) - 11 colors

119. Paired (Qualitative) - 12 colors

120. Accent (Qualitative) - 3 colors
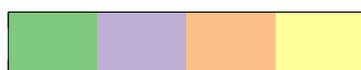
121. Accent (Qualitative) - 4 colors
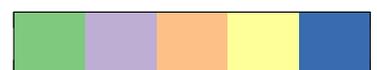
122. Accent (Qualitative) - 5 colors
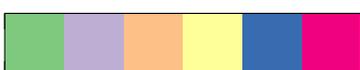
123. Accent (Qualitative) - 6 colors
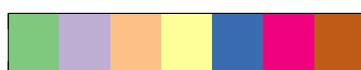
124. Accent (Qualitative) - 7 colors

125. Accent (Qualitative) - 8 colors
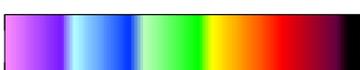
126. DIAL/LIDAR (diverging)

127. MODIFIED SPECTRUM (spec)

128. WHITE-GREEN-YELLOW-RED (spec

129. ALL-WHITE (calibration)